

4 the pulse system comprises a pulse delivery system within the cavity of
5 the housing, the pulse delivery system having an antenna capable of receiving RF
6 energy and a pulse former coupled to the antenna; and
7 the first and second electrodes are electrically coupled to the pulse
8 system within the housing.

1 83. The apparatus of claim 71 wherein the first and second electrodes
2 are conductive elements at a distal surface of the support member for being positioned
3 against the pial surface of the brain or at least proximate to the pial surface, and
4 wherein the first electrode has a generally circular shape and the second electrode has
5 a generally circular shape that surrounds the first electrode.

1 84. The apparatus of claim 71 wherein the first and second electrodes
2 are conductive elements at a distal surface of the support member for being positioned
3 against the pial surface of the brain or at least proximate to the pial surface, and
4 wherein the first electrode is defined by a first conductive pad at a first area of the
5 distal surface and the second electrode is defined by a second conductive pad at a
6 second area of the distal surface.

1 85. The apparatus of claim 71, further comprising a third electrode
2 and a fourth electrode coupled to the pulse system, and wherein the first, second, third
3 and fourth electrodes are conductive elements at a distal surface of the support member
4 for being positioned against the pial surface of the brain or at least proximate to the
5 pial surface.

1 86. The apparatus of claim 87, further comprising a switching circuit
2 having a plurality of switches coupled between the electrodes and the pulse system to
3 selectively generate electrical fields between the first, second, third and fourth
4 electrodes.

1 87. The apparatus of claim 71 wherein the first and second electrodes
2 comprise implantable pins that project from a distal surface of the support member for
3 penetrating into a cortical region or a deep-brain region of the brain.

1 88. The apparatus of claim 71, further comprising a mechanical
2 biasing element carried by the support member and coupled to the first and second
3 electrodes.

1 89. The apparatus of claim 88 wherein the biasing element comprises
2 a compressible foam.

1 90. The apparatus of claim 88 wherein the biasing element comprises
2 a spring.

1 91. The apparatus of claim 88 wherein the biasing element comprises
2 an inflatable bladder.

1 92. The apparatus of claim 71 wherein the housing has an interior
2 surface and the first and second electrodes are carried by the housing to be exposed at
3 the interior surface, and wherein the interior surface has a maximum dimension of not
4 greater than 4 cm.

1 93. The apparatus of claim 71 wherein the housing has an interior
2 surface and the first and second electrodes are carried by the housing to be exposed at
3 the interior surface, and wherein the interior surface has a maximum dimension of not
4 greater than approximately 1-2 cm.

94. The apparatus of claim 71 wherein the housing has an outer surface configured to face away from the skull and an interior surface configured to face toward the brain, and wherein the interior surface has a maximum dimension of not greater than approximately 1-2 cm and a depth of the housing between the outer surface and the interior surface is approximately 1-2 cm.

95. An apparatus for applying electrical stimulation to a region of a brain of a patient, comprising:

an implantable support member configured to be implanted into the patient proximate to a skull of the patient, the support member including an attachment element to fix the support member to the skull;

a pulse system carried by the support member;

a first electrode at a first region of the support member, the first electrode being coupled to the pulse system; and

a second electrode at a second region of the support member spaced apart from the first electrode, the second electrode being coupled to the pulse system.

96. The apparatus of claim 95 wherein:

the support member comprises a housing configured to be implanted at least partially within the skull, the housing having a cavity; and

the pulse system comprises a power supply and a pulse generator within the cavity of the housing.

97. The apparatus of claim 95 wherein:

the support member comprises a housing configured to be implanted at least partially within the skull, the housing having a cavity; and

the pulse system comprises a pulse generator within the cavity of the housing.